

IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application. An identifier indicating the status of each claim is provided.

Listing of Claims

1. (Currently Amended) A recording apparatus for recording video data to a record medium, comprising:

encoding means for encoding video data in a group structure of a plurality of frames ~~corresponding to~~ by performing a compression-encoding process in which is a combination of an inter-frame predictive encoding process and a motion compensative process;

transforming means for transforming the data structure of encoded video data that is output from said encoding means into a file structure ~~that can be processed by a computer software program without a dedicated hardware portion so that moving pictures are~~ synchronously reproduced; and

recording means for recording ~~data having the file structure~~ said transformed encoded video data to a record medium,

wherein said transforming means transforms the data structure of said encoded video data into said file structure which contains a first data unit which corresponds to a predetermined number of frames of said encoded video data outputted from said encoding means, and a second data unit which consists of a plurality of said first data units, and

wherein said recording means records said transformed encoded video data so that the encoded video data of said second data unit is recorded on a successive location of said record medium.

~~wherein the file structure has a first data unit and a second data unit, the second data unit being a set of the first data units, and~~

~~wherein at least one data structure is matched with the first data unit,~~

~~whereby said second data unit is adapted to be read from said record medium in its entirety without having to perform a jump between non successive locations on said record medium.~~

2. (Currently Amended) A recording apparatus for recording video data to a rewritable optical disc, comprising:

encoding means for encoding video data ~~corresponding to~~ by performing a compression-encoding process;

transforming means for transforming the data structure of encoded video data that is output from said encoding means into a file structure ~~that can be processed by a computer software program without a dedicated hardware portion so that moving pictures are~~ synchronously reproduced; and

recording means for recording data ~~having the file structure~~ said transformed encoded data to an optical disc,

wherein said transforming means transforms the data structure of said encoded video data into said file structure which contains a first data unit which corresponds to a predetermined number of frames of said encoded video data outputted from said encoding means, and a second data unit which consists of a plurality of said first data units, and

wherein said recording means records said transformed encoded video data so that the encoded video data of said second data unit is recorded on a successive location of said record medium.

~~wherein the file structure has a first data unit and a second data unit, the second data unit being a set of the first data units, and~~

~~wherein the second data unit is matched with a successive record length of data written to the optical disc;~~

~~whereby said second data unit is adapted to be read from said disc in its entirety without having to perform a jump between non-successive locations on said disc.~~

3. (Original) The recording apparatus as set forth in claim 1,
wherein the compression-encoding process is MPEG,
wherein the group structure is GOP structure, and
wherein data of which a sequence header is added to each GOP is matched with the first data unit.

4. (Currently Amended) A recording apparatus for recording audio data to a rewritable optical disc, comprising:

transforming means for transforming the data structure of audio data or encoded audio data into a file structure ~~that can be processed by a computer software program without a dedicated hardware portion so that moving pictures are synchronously reproduced;~~ and

recording means for recording data ~~having the file structure~~ said transformed encoded video data to the optical disc,

wherein said transforming means transforms the data structure of said encoded video data into said file structure which contains a first data unit which corresponds to a predetermined number of frames of said encoded video data outputted from said encoding means, and a second data unit which consists of a plurality of said first data units, and

wherein said recording means records said transformed encoded video data so that the encoded video data of said second data unit is recorded on a successive location of said record medium.

~~wherein the file structure has a first data unit and a second data unit, the second data unit being a set of the first data units, and~~

~~wherein the second data unit is matched with a successive record length of data written to the optical disc;~~

~~whereby said second data unit is adapted to be read from said disc in its entirety without having to perform a jump between non-successive locations on said disc.~~

5. (Currently Amended) A recording apparatus for recording video data and audio data to a record medium, comprising:

video encoding means for encoding video data in a group structure of a plurality of frames ~~corresponding to~~ by performing a compression-encoding process ~~in which is~~ a combination of an inter-frame predictive encoding process and a motion compensative process;

audio output means for outputting compression-encoded or non-compressed audio data;

means for transforming the data structure of encoded video data that is output from said video encoding means and audio data that is output from said audio output means into

~~a file structure that can be processed by a computer software program without a dedicated hardware portion so that moving pictures are synchronously reproduced and multiplexing the encoded video data and the audio data having the file structure; and~~

~~recording means for recording multiplexed data having the file structure to a record medium,~~

wherein said transforming means transforms the data structure of said encoded video data into said file structure which contains a first data unit which corresponds to a predetermined number of frames of said encoded video data outputted from said encoding means, and a second data unit which consists of a plurality of said first data units, and

wherein said recording means records said transformed encoded video data so that the encoded video data of said second data unit is recorded on a successive location of said record medium.

~~wherein the file structure has a first data unit and a second data unit, the second data unit being a set of the first data units, and~~

~~wherein at least one data structure of the encoded video data is matched with the first data unit;~~

~~whereby said second data unit is adapted to be read from said record medium in its entirety without having to perform a jump between non-successive locations on said record medium.~~

6. (Currently Amended) A recording apparatus for recording video data and audio data to a rewritable optical disc, comprising:

video encoding means for encoding video data in a group structure of a plurality of frames ~~corresponding to~~ by performing a compression-encoding process ~~in which is~~ a combination of an inter-frame predictive encoding process and a motion compensative process;

audio output means for outputting compression-encoded or non-compressed audio data;

means for transforming the data structure of encoded video data that is output from said video encoding means and audio data that is output from said audio output means into a file structure ~~that can be processed by a computer software program without a dedicated hardware portion so that moving pictures are synchronously reproduced and~~ multiplexing the encoded video data and the audio data having the file structure; and

recording means for recording multiplexed data ~~having the file structure to an~~ optical disc,

wherein said transforming means transforms the data structure of said encoded video data into said file structure which contains a first data unit which corresponds to a predetermined number of frames of said encoded video data outputted from said encoding means, and a second data unit which consists of a plurality of said first data units, and

wherein said recording means records said transformed encoded video data so that the encoded video data of said second data unit is recorded on a successive location of said record medium.

~~wherein the file structure has a first data unit and a second data unit, the second data unit being a set of the first data units, and~~

~~wherein the second data unit is matched with a successive record length of which data is successively written to the optical disc;~~

~~whereby said second data unit is adapted to be read from said disc in its entirety~~
~~without having to perform a jump between non-successive locations on said disc.~~

7. (Previously Presented) The recording apparatus as set forth in claim 5,
wherein the duration of the encoded video data of the second data unit is the same
as the duration of the encoded audio data of the second data unit in the multiplexed data.

8. (Previously Presented) The recording apparatus as set forth in claim 5,
wherein the encoded video data of the second data unit and the encoded audio
data of the second data unit are alternately placed in the multiplexed data, each of the encoded
video data of the second data unit and the encoded audio data of the second data unit being
matched with the successive record length.

9. (Previously Presented) The recording apparatus as set forth in claim 5,
wherein the audio data is compression-encoded corresponding to ATRAC, and
wherein the first data unit of the file structure contains at least one sound unit of
ATRAC.

10. (Previously Presented) The recording apparatus as set forth in claim 1,
wherein the file structure further includes a data portion containing management
information.

11. (Previously Presented) The recoding apparatus as set forth in claim 1,

wherein the file structure further includes a data portion containing management information, and

wherein the data portion contains size information of the first data unit and position information of the second data unit.

12. (Currently Amended) A recording method for recording video data to a record medium, comprising the steps of:

encoding video data in a group structure of a plurality of frames ~~corresponding to~~ by performing a compression-encoding process in which is a combination of an inter-frame predictive encoding process and a motion compensative process;

~~transforming the data structure of encoded video data into a file structure that can be processed by a computer software program without a dedicated hardware portion so that moving pictures are synchronously reproduced; and~~

recording said transformed encoded video data having the file structure to a
record medium,

wherein said transforming step transforms the data structure of said encoded video data into said file structure which contains a first data unit which corresponds to a predetermined number of frames of said encoded video data outputted from said encoding means, and a second data unit which consists of a plurality of said first data units, and

wherein said recording step records said transformed encoded video data so that the encoded video data of said second data unit is recorded on a successive location of said record medium.

~~wherein the file structure has a first data unit and a second data unit, the second data unit being a set of the first data units, and~~

~~wherein at least one data structure is matched with the first data unit;~~

~~whereby said second data unit is adapted to be read from said record medium in its entirety without having to perform a jump between non-successive locations on said record medium.~~

13. (Currently Amended) A recording method for recording video data to a rewritable optical disc, comprising the steps of:

encoding video data ~~corresponding to~~ by performing a compression-encoding process;

transforming the data structure of encoded video data into a file structure ~~that can be processed by a computer software program without a dedicated hardware portion so that moving pictures are synchronously reproduced;~~ and

recording the transformed encoded video data ~~having the file structure~~ to an optical disc,

wherein said transforming step transforms the data structure of said encoded video data into said file structure which contains a first data unit which corresponds to a predetermined number of frames of said encoded video data outputted from said encoding means, and a second data unit which consists of a plurality of said first data units, and

wherein said recording step records said transformed encoded video data so that the encoded video data of said second data unit is recorded on a successive location of said record medium.

~~wherein the file structure has a first data unit and a second data unit, the second data unit being a set of the first data units, and~~

~~wherein the second data unit is matched with a successive record length of data written to the optical disc;~~

~~whereby said second data unit is adapted to be read from said disc in its entirety without having to perform a jump between non-successive locations on said disc.~~

14. (Currently Amended) A recording method for recording audio data to a rewritable optical disc, comprising the steps of:

transforming the data structure of audio data or encoded audio data into a file structure ~~that can be processed by a computer software program without a dedicated hardware portion so that moving pictures are synchronously reproduced; and~~

recording the transformed encoded video data having the file structure to the optical disc,

wherein said transforming step transforms the data structure of said encoded video data into said file structure which contains a first data unit which corresponds to a predetermined number of frames of said encoded video data outputted from said encoding means, and a second data unit which consists of a plurality of said first data units, and

wherein said recording step records said transformed encoded video data so that the encoded video data of said second data unit is recorded on a successive location of said record medium.

~~wherein the file structure has a first data unit and a second data unit, the second data unit being a set of the first data units, and~~

~~wherein the second data unit is matched with a successive record length of data written to the optical disc;~~

~~whereby said second data unit is adapted to be read from said disc in its entirety without having to perform a jump between non-successive locations on said disc.~~

15. (Currently Amended) A recording method for recording video data and audio data to a record medium, comprising the steps of:

encoding video data in a group structure of a plurality of frames ~~corresponding to~~ by performing a compression-encoding process in which is a combination of an inter-frame predictive encoding process and a motion compensative process;

outputting compression-encoded or non-compressed audio data;

transforming the data structure of encoded video data and audio data into a file structure ~~that can be processed by a computer software program without a dedicated hardware portion so that moving pictures are synchronously reproduced and~~ multiplexing the encoded video data and the audio data having the file structure; and

recording said transformed multiplexed video data ~~having the file structure to a~~ record medium,

wherein said transforming step transforms the data structure of said encoded video data into said file structure which contains a first data unit which corresponds to a predetermined number of frames of said encoded video data outputted from said encoding means, and a second data unit which consists of a plurality of said first data units, and

wherein said recording step records said transformed encoded video data so that the encoded video data of said second data unit is recorded on a successive location of said record medium.

~~wherein the file structure has a first data unit and a second data unit, the second data unit being a set of the first data units, and~~

~~wherein at least one data structure of the encoded video data is matched with the first data unit;~~

~~whereby said second data unit is adapted to be read from said record medium in its entirety without having to perform a jump between non successive locations on said record medium.~~

16. (Currently Amended) A recording method for recording video data and audio data to a rewritable optical disc, comprising the steps of:

encoding video data in a group structure of a plurality of frames ~~corresponding to~~ by performing a compression-encoding process ~~in which is~~ a combination of an inter-frame predictive encoding process and a motion compensative process;

outputting compression-encoded or non-compressed audio data;

transforming the data structure of encoded video data and audio data into a file structure ~~that can be processed by a computer software program without a dedicated hardware portion so that moving pictures are synchronously reproduced~~ and multiplexing the encoded video data and the audio data having the file structure; and

recording multiplexed data ~~having the file structure~~ to an optical disc,

wherein said transforming step transforms the data structure of said encoded video data into said file structure which contains a first data unit which corresponds to a predetermined number of frames of said encoded video data outputted from said encoding means, and a second data unit which consists of a plurality of said first data units, and

wherein said recording step records said transformed encoded video data so that the encoded video data of said second data unit is recorded on a successive location of said record medium.

~~wherein the file structure has a first data unit and a second data unit, the second data unit being a set of the first data units, and~~

~~wherein the second data unit is matched with a successive record length of which data is successively written to the optical disc;~~

~~whereby said second data unit is adapted to be read from said disc in its entirety without having to perform a jump between non-successive locations on said disc.~~

17. (Currently Amended) A record medium on which a program for recording video data to a record medium has been recorded, the program causing a computer to perform the steps of:

encoding video data in a group structure of a plurality of frames ~~corresponding to~~ by performing a compression-encoding process ~~in which is~~ a combination of an inter-frame predictive encoding process and a motion compensative process;

transforming the data structure of encoded video data into a file structure ~~that can be processed by a computer software program without a dedicated hardware portion so that moving pictures are synchronously reproduced; and~~

recording said transformed encoded video data having the file structure to a
record medium,

wherein said transforming step transforms the data structure of said encoded
video data into said file structure which contains a first data unit which corresponds to a
predetermined number of frames of said encoded video data outputted from said encoding
means, and a second data unit which consists of a plurality of said first data units, and

wherein said recording step records said transformed encoded video data so that
the encoded video data of said second data unit is recorded on a successive location of said
record medium.

~~wherein the file structure has a first data unit and a second data unit, the second~~
~~data unit being a set of the first data units, and~~

~~wherein at least one data structure is matched with the first data unit;~~

~~whereby said second data unit is adapted to be read from said record medium in~~
~~its entirety without having to perform a jump between non successive locations on said record~~
~~medium.~~

18. (Currently Amended) A record medium on which a program for recording
video data to a rewritable optical disc has been recorded, the program causing a computer to
perform the steps of:

encoding video data ~~corresponding to~~ by performing a compression-encoding
process;

~~transforming the data structure of encoded video data into a file structure that can be processed by a computer software program without a dedicated hardware portion so that moving pictures are synchronously reproduced; and~~

~~recording said transformed encoded video data having the file structure to an optical disc,~~

~~wherein said transforming step transforms the data structure of said encoded video data into said file structure which contains a first data unit which corresponds to a predetermined number of frames of said encoded video data outputted from said encoding means, and a second data unit which consists of a plurality of said first data units, and~~

~~wherein said recording step records said transformed encoded video data so that the encoded video data of said second data unit is recorded on a successive location of said record medium.~~

~~wherein the file structure has a first data unit and a second data unit, the second data unit being a set of the first data units, and~~

~~wherein the second data unit is matched with a successive record length of data written to the optical disc;~~

~~whereby said second data unit is adapted to be read from said disc in its entirety without having to perform a jump between non-successive locations on said disc.~~

19. (Currently Amended) A record medium on which a program for recording audio data to a rewritable optical disc has been recorded, the program causing a computer to perform the steps of:

transforming the data structure of audio data or encoded audio data into a file structure that can be processed by a computer software program without a dedicated hardware portion so that moving pictures are synchronously reproduced; and

recording said transformed encoded video data having the file structure to the optical disc,

wherein said transforming step transforms the data structure of said encoded video data into said file structure which contains a first data unit which corresponds to a predetermined number of frames of said encoded video data outputted from said encoding means, and a second data unit which consists of a plurality of said first data units, and

wherein said recording step records said transformed encoded video data so that the encoded video data of said second data unit is recorded on a successive location of said record medium.

~~wherein the file structure has a first data unit and a second data unit, the second data unit being a set of the first data units, and~~

~~wherein the second data unit is matched with a successive record length of data written to the optical disc;~~

~~whereby said second data unit is adapted to be read from said disc in its entirety without having to perform a jump between non-successive locations on said disc.~~

20. (Currently Amended) A record medium on which a program for recording video data and audio data to a record medium has been recorded, the program causing a computer to perform the steps of:

encoding video data in a group structure of a plurality of frames ~~corresponding to~~ by performing a compression-encoding process in which is a combination of an inter-frame predictive encoding process and a motion compensative process;

outputting compression-encoded or non-compressed audio data;

transforming the data structure of encoded video data and audio data into a file structure ~~that can be processed by a computer software program without a dedicated hardware portion so that moving pictures are synchronously reproduced and~~ multiplexing the encoded video data and the audio data having the file structure; and

recording multiplexed data ~~having the file structure to~~ a record medium,

wherein said transforming step transforms the data structure of said encoded video data into said file structure which contains a first data unit which corresponds to a predetermined number of frames of said encoded video data outputted from said encoding means, and a second data unit which consists of a plurality of said first data units, and

wherein said recording step records said transformed encoded video data so that the encoded video data of said second data unit is recorded on a successive location of said record medium.

~~wherein the file structure has a first data unit and a second data unit, the second data unit being a set of the first data units, and~~

~~wherein at least one data structure of the encoded video data is matched with the first data unit;~~

~~whereby said second data unit is adapted to be read from said record medium in its entirety without having to perform a jump between non-successive locations on said record medium.~~

21. (Currently Amended) A record medium on which a program for recording video data and audio data to a rewritable optical disc has been recorded, the program causing a computer to perform the steps of:

encoding video data in a group structure of a plurality of frames ~~corresponding to~~ by performing a compression-encoding process ~~in which is~~ a combination of an inter-frame predictive encoding process and a motion compensative process;

outputting compression-encoded or non-compressed audio data;

transforming the data structure of encoded video data and audio data into a file structure ~~that can be processed by a computer software program without a dedicated hardware portion so that moving pictures are synchronously reproduced and~~ multiplexing the encoded video data and the audio data having the file structure; and

recording multiplexed data ~~having the file structure~~ to an optical disc,

wherein said transforming step transforms the data structure of said encoded video data into said file structure which contains a first data unit which corresponds to a predetermined number of frames of said encoded video data outputted from said encoding means, and a second data unit which consists of a plurality of said first data units, and

wherein said recording step records said transformed encoded video data so that the encoded video data of said second data unit is recorded on a successive location of said record medium.

~~wherein the file structure has a first data unit and a second data unit, the second data unit being a set of the first data units, and~~

~~wherein the second data unit is matched with a successive record length of which~~
~~data is successively written to the optical disc;~~

~~whereby said second data unit is adapted to be read from said disc in its entirety~~
~~without having to perform a jump between non-successive locations on said disc.~~